

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: VINSON, Charles R.  
KRYLOV, Dmitry
- (ii) TITLE OF INVENTION: EXTENSION OF A PROTEIN-PROTEIN  
INTERACTION SURFACE TO INACTIVATE THE FUNCTION OF A  
CELLULAR PROTEIN
- (iii) NUMBER OF SEQUENCES: 64
- (iv) CORRESPONDENCE ADDRESS:  
(A) ADDRESSEE: MORGAN & FINNEGAN, L.L.P.  
(B) STREET: 345 Park Avenue  
(C) CITY: New York  
(D) STATE: NY  
(E) COUNTRY: USA  
(F) ZIP: 10154-0053
- (v) COMPUTER READABLE FORM:  
(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: MS WORD 97  
(D) SOFTWARE: ASCII
- (vi) CURRENT APPLICATION DATA:  
(A) APPLICATION NUMBER: 09/299,495  
(B) FILING DATE: 26-APR-1999
- (vii) PRIOR APPLICATION DATA:  
(A) APPLICATION NUMBER: 60/001,654  
(B) FILING DATE: 31-JUL-1995
- (vii) PRIOR APPLICATION DATA:  
(A) APPLICATION NUMBER: 60/018,496  
(B) FILING DATE: 29-MAY-1996
- (vii) PRIOR APPLICATION DATA:  
(A) APPLICATION NUMBER: 08/690,011  
(B) FILING DATE: 31-JULY-1996
- (viii) ATTORNEY/AGENT INFORMATION:  
(A) NAME: Serunian, Leslie A.  
(B) REGISTRATION NUMBER: 35,353  
(C) REFERENCE/DOCKET NUMBER: 2026-4199US2
- (ix) TELECOMMUNICATION INFORMATION:  
(A) TELEPHONE: (212)758-4800  
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(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 24 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

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Asp Pro Asp Leu Glu Lys Glu Ala Glu Glu Leu Glu
1           5           10
Gln Glu Asn Ala Glu Leu Glu Leu Glu Asp Ser Phe
15           20

```

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 25 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: unknown
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```

Asp Pro Asp Leu Glu Lys Glu Ala Glu Glu Leu Glu
1           5           10
Gln Glu Asn Ala Glu Leu Glu Glu Leu Glu Asp Ser
15           20
Phe
25

```

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 26 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: unknown
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```

Asp Pro Asp Leu Glu Lys Glu Ala Glu Glu Leu Glu
1           5           10
Gln Glu Asn Ala Glu Leu Glu Glu Leu Glu Asp

```

Ser Phe  
25

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 19 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Asp Pro Asp Glu Glu Glu Asp Asp Glu Glu Glu Leu  
1 5 10

Glu Glu Leu Glu Asp Ser Phe  
15

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 11 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Asp Pro Asp Leu Glu Glu Leu Glu Asp Ser Phe  
1 5 10

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 223 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

GGATCCCCTT CCTACACAGC CTGCTGAAGA AGCAGCACGA

40

2025/07/20 01:29:02

AAGAGAGAGG TTCGTCTAAT GAAGAACAGG GAAGCAGCAA 80  
 GAGAATGTGC TAGAAAGAAG AAAGAATATG TGAAATGTTT 120  
 AGAGAACAGA GTGGCAGTGC TTGAAAACCA AAACAAAACA 160  
 TTGATTGAGG AGCTAAAAGC ACTTAAGGAC CTTTACTGCC 200  
 ACAAGTCAGA TTAATTCAAG CTT 223

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 68 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Leu Pro Thr Gln Pro Ala Glu Glu Ala Ala Arg Lys  
 1 5 10  
 Arg Glu Val Arg Leu Met Lys Asn Arg Glu Ala Ala  
 15 20  
 Arg Glu Cys Arg Arg Lys Lys Lys Glu Tyr Val Lys  
 25 30 35  
 Cys Leu Glu Asn Arg Val Ala Val Leu Glu Asn Gln  
 40 45  
 Asn Lys Thr Leu Ile Glu Glu Leu Lys Ala Leu Lys  
 50 55 60  
 Asp Leu Tyr Cys His Lys Ser Asp  
 65

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 290 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

CCATGGACTA CAAGGACGAC GATGACAAGC ATATGGCTAG 40  
CATGACTGGT GGACAGCAAA TGGGTCGGGA TCCCCCTCCT 80  
ACACAGCCTG CTGAAGAAGC AGCACGAAAG AGAGAGGTTC 120  
GTCTAATGAA GAACAGGGAA GCAGCAAGAG AATGTCGTAG 160  
AAAGAAGAAA GAATATGTGA AATGTTTAGA GAACAGAGTG 200  
GCAGTGCCTG AAAACCAAAA CAAAACATTG ATTGAGGAGC 240  
TAAAAGCACT TAAGGACCTT TACTGCCACA AGTCAGATTA 280  
ATCAAGCTT 290

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 92 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Met Asp Tyr Lys Asp Asp Asp Asp Lys His Met Ala  
1 5 10  
Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Pro  
15 20  
Leu Pro Thr Gln Pro Ala Glu Glu Ala Ala Arg Lys  
25 30 35  
Arg Glu Val Arg Leu Met Lys Asn Arg Glu Ala Ala  
40 45  
Arg Glu Cys Arg Arg Lys Lys Lys Glu Tyr Val Lys  
50 55 60  
Cys Leu Glu Asn Arg Val Ala Val Leu Glu Asn Gln  
65 70  
Asn Lys Thr Leu Ile Glu Glu Leu Lys Ala Leu Lys  
75 80  
Asp Leu Tyr Cys His Lys Ser Asp  
85 90

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 266 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

CCATGGACTA CAAGGACGAC GATGACAAGC ATATGGCTAG	40
CATGACTGGT GGACAGCAAA TGGGTCGGGA TCCTGACCTG	80
GAACAACGTG CTGAGGAAGT GGCCCGTGAA AACGAAGAGC	120
TGGAAAAAGA GGCCGAAGAG CTGAGCAGG AACTGGCAGA	160
ACTCGAGAAC AGAGTGGCAG TGCTTGAAAA CCAAAACAAA	200
ACATTGATTG AGGAGCTAAA AGCACTTAAG GACCTTTACT	240
GCCACAAGTC AGATTAATTC AAGCTT	266

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 84 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Met Asp Tyr Lys Asp Asp Asp Asp Lys His Met Ala	1	5	10
Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Pro	15	20	
Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala Arg Glu	25	30	35
Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu Leu Glu	40	45	
Gln Glu Leu Ala Glu Leu Glu Asn Arg Val Ala Val			

50

55

60

Leu Glu Asn Gln Asn Lys Thr Leu Ile Glu Glu Leu  
65 70

Lys Ala Leu Lys Asp Leu Tyr Cys His Lys Ser Asp  
75 80

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 262 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

GGATCCCAAG GTGGAACAGT TATCTCCAGA AGAAGAAGAG	40
AAAAGAGGAA TCCGAAGGGA AAGGAATAAG ATGGCTGCAG	80
CCAAATGCCG CAACCGGAGG AGGGAGCTGA CTGATACACT	120
CCAAGCGGAG ACAGACCAAC TAGAAGATGA GAAGTCTGCT	160
TTGCAGACCG AGATTGCCAA CCTGCTGAAG GAGAAGGAAA	200
AACTAGAGTT CATCTGGCA GCTACCGAC CTGCCTGCAA	240
GATCCCTGAT TAATTCAGC TT	262

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 82 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Pro Asp Lys Val Glu Gln Leu Ser Pro Glu Glu Glu  
1 5 10

Glu Lys Arg Arg Ile Arg Arg Glu Arg Asn Lys Met  
15 20

Ala Ala Ala Lys Cys Arg Asn Arg Arg Arg Glu Leu  
25 30 35

Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Leu Glu  
40 45  
Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn  
50 55 60  
Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu  
65 70  
Ala Ala His Arg Pro Ala Cys Lys Ile Pro  
75 80

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 324 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

CCATGGACTA CAAGGACGAC GATGACAAGC ATATGGCTAG	40
CATGACTGGT GGACAGCAAA TGGGTCGGGA TCCCAAGGTG	80
GAACAGTTAT CTCCAGAAGA AGAAGAGAAA AGGAGAATCC	120
GAAGGGAAG GAATAAGATG GCTGCAGCCA AATGCCGCAA	160
CCGGAGGAGG GAGCTGACTG ATACACTCCA AGCGGAGACA	200
GACCAACTAG AAGATGAGAA GTCTGCTTTG CAGACCGAGA	240
TTGCCAACCT GCTGAAGGAG AAGGAAAAAC TAGAGTTCAT	280
CCTGGCAGCT CACCGACCTG CCTGCAAGAT CCTGATTAA	320
GCTT	324

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 105 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide



(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Met Asp Tyr Lys Asp Asp Asp Lys His Met Ala  
1 5 10  
Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Pro  
15 20  
Lys Val Glu Gln Leu Ser Pro Glu Glu Glu Glu Lys  
25 30 35  
Arg Arg Ile Arg Arg Glu Arg Asn Lys Met Ala Ala  
40 45  
Ala Lys Cys Arg Asn Arg Arg Arg Glu Leu Thr Asp  
50 55 60  
Thr Leu Gln Ala Glu Thr Asp Gln Leu Glu Asp Glu  
65 70  
Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu  
75 80  
Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala  
85 90 95  
His Arg Pro Ala Cys Lys Ile Pro Asp  
100 105

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 281 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

ATATACATAT GGCTAGCATG ACTGGTGGAC AGCAAATGGG 40  
TCGGGATCCT GACCTGGAAC AACGTGCTGA GGAAC TG GCC 80  
CGTGAAACG AAGAGCTGGA AAAAGAGGCC GAAGAGCTGG 120  
AGCAGGAAAA CGCTGAACTC GAGGCGGAGA CAGACCAACT 160  
AGAAGATGAG AAGTCTGCTT TGCAGACCGA GATTGCCAAC 200  
CTGCTGAAGG AGAAGGAAAA ACTAGAGTTC ATCCTGGCAG 240  
CTCACCGACC TGCCTGCAAG ATCCCTGATT AATTCAAGCT 280

## (2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 86 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
 1 5 10  
 Asp Pro Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala  
 15 20  
 Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
 25 30 35  
 Leu Glu Gln Glu Asn Ala Glu Leu Glu Ala Glu Thr  
 40 45  
 Asp Gln Leu Glu Asp Glu Lys Ser Ala Leu Gln Thr  
 50 55 60  
 Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu  
 65 70  
 Glu Phe Ile Leu Ala Ala His Arg Pro Ala Cys Lys  
 75 80  
 Ile Pro  
 85

## (2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 300 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

CCATGGACTA CAAGGACGAC GATGACAAGC ATATGGCTAG

CATGACTGGT GGACAGCAAA TGGTCGGGA TCCTGACCTG 80  
 GAACAACGTG CTGAGGAACT GGCCCGTGAA AACGAAGAGC 120  
 TGGAAAAAGA GGCCGAAGAG CTGAGCAGG AAAACGCTGA 160  
 ACTCGAGGCG GAGACAGACC AACTAGAAGA TGAGAAGTCT 200  
 GCTTTGCAGA CCGAGATTGC CAACCTGCTG AAGGAGAAGG 240  
 AAAAACTAGA GTTCATCCTG GCAGCTCACC GACCTGCCTG 280  
 CAAGATCCCT GATTAAGCTT 300

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 97 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Met Asp Tyr Lys Asp Asp Asp Lys His Met Ala  
 1 5 10  
 Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Pro  
 15 20  
 Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala Arg Glu  
 25 30 35  
 Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu Leu Glu  
 40 45  
 Gln Glu Asn Ala Glu Leu Glu Ala Glu Thr Asp Gln  
 50 55 60  
 Leu Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile  
 65 70  
 Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe  
 75 80  
 Ile Leu Ala Ala His Arg Pro Ala Cys Lys Ile Pro  
 85 90 95  
 Asp

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CCATGGACTA CAAGGACGAC GATGACAAGC ATATGGCTAG	40
CATGACTGGT GGACAGCAAA TGGGTCGGGA TCCCTCCCCT	80
ATTGACATGG AGTCGCAGGA GAGAATCAA GCCGAGAGAA	120
AACGCATGAG AAACAGAATT GCGGCGTCCA AATGCCGAA	160
AAGGAAGTTG GAAAGGATTG CCAGGTTGGA AGAAAAAGTG	200
AAAACCTTGA AAGCCCAGAA CTCAGAGCTG GCATCCACGG	240
CCAACATGCT CAGAGAACAG GTTGACACAGC TTAAGCAGAA	280
GGTCATGAAC CATGTCAACA GCGGGTGCCA GCTAATGCTA	320
ACACAACAGT TGCAAACGTT TTGATTCAAG CTT	353

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 113 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Met Asp Tyr Lys Asp Asp Asp Lys His Met Ala	
1                  5                  10	
Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Pro	
15                                  20	
Ser Pro Ile Asp Met Glu Ser Gln Glu Arg Ile Lys	
25                          30                  35	
Ala Glu Arg Lys Arg Met Arg Asn Arg Ile Ala Ala	

40

45

Ser Lys Cys Arg Lys Arg Lys Leu Glu Arg Ile Ala  
50 55 60

Arg Leu Glu Glu Lys Val Lys Thr Leu Lys Ala Gln  
65 70

Asn Ser Glu Leu Ala Ser Thr Ala Asn Met Leu Arg  
75 80

Glu Gln Val Ala Gln Leu Lys Gln Lys Val Met Asn  
85 90 95

His Val Asn Ser Gly Cys Gln Leu Met Leu Thr Gln  
100 105

Gln Leu Gln Thr Phe  
110

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 324 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: unknown

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

ATACATATGG CTAGCATGAC TGGTGGACAG CAAATGGGTC	40
GGGATCCCGA CGAAGAGGAA GATGACGAAG AAGAACTCGA	80
GGAAGTGGAA GACAGCTTTC ACAGTTTGCG GGACTCAGTC	120
CCATCACTCC AAGGAGAGAA GGCATCCCGG GCCCAAATCC	160
TAGACAAAGC AACAGAGTAT ATCCAGTATA TCGAAGGAA	200
AAACCATACG CACCAGCAAG ACATTGATGA CCTCAAGCGG	240
CAGAATGCTC TTCTGGAGCA ACAAGTCCGT GCACTGGAGA	280
AGGCAAGATC AAGTGCCCAA CTGCAGACCT GAGGCAAGCT	320
TATC	324

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 101 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
 1 5 10  
 Asp Pro Asp Glu Glu Glu Asp Asp Glu Glu Glu Leu  
 15 20  
 Glu Glu Leu Glu Asp Ser Phe His Ser Leu Arg Asp  
 25 30 35  
 Ser Val Pro Ser Leu Gln Gly Glu Lys Ala Ser Arg  
 40 45  
 Ala Gln Ile Leu Asp Lys Ala Thr Glu Tyr Ile Gln  
 50 55 60  
 Tyr Met Arg Arg Lys Asn His Thr His Gln Gln Asp  
 65 70  
 Ile Asp Asp Leu Lys Arg Gln Asn Ala Leu Leu Glu  
 75 80  
 Gln Gln Val Arg Ala Leu Glu Lys Ala Arg Ser Ser  
 85 90 95  
 Ala Gln Leu Gln Thr  
 100

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 341 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

ATATACATAT GGCTAGCATG ACTGGTGGAC AGCAAATGGG 40  
 TCGGGATCCT GACCTGGAAG AAGAGCCGA AGAGCTGGAG 80  
 CAGGAAAACG CTGAACTCGA GCTGGAAGAC AGCTTTCACA 120

GTTTGCGGGA CTCAGTCCCA TCACTCCAAG GAGAGAAGGC 160  
 ATCCCGGGCC CAAATCCTAG ACAAAGCAAC AGAGTATATC 200  
 CAGTATATGC GAAGGAAAAA CCATACGCAC CAGCAAGACA 240  
 TTGATGACCT CAAGCGGCAG AATGCTCTTC TGGAGCAACA 280  
 AGTCCGTGCA CTGGAGAAGG CAAGATCAAG TGCCCAACTG 320  
 CAGACCTGAG GCAAGCTTAT C 341

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 106 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
 1 5 10  
 Asp Pro Asp Leu Glu Lys Glu Ala Glu Glu Leu Glu  
 15 20  
 Gln Glu Asn Ala Glu Leu Glu Leu Glu Asp Ser Phe  
 25 30 35  
 His Ser Leu Arg Asp Ser Val Pro Ser Leu Gln Gly  
 40 45  
 Glu Lys Ala Ser Arg Ala Gln Ile Leu Asp Lys Ala  
 50 55 60  
 Thr Glu Tyr Ile Gln Tyr Met Arg Arg Lys Asn His  
 65 70  
 Thr His Gln Gln Asp Ile Asp Asp Leu Lys Arg Gln  
 75 80  
 Asn Ala Leu Leu Glu Gln Gln Val Arg Ala Leu Glu  
 85 90 95  
 Lys Ala Arg Ser Ser Ala Gln Leu Gln Thr  
 100 105

(2) INFORMATION FOR SEQ ID NO:26:

105420.012902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

(2) INFORMATION FOR SEQ ID NO:27:

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

16



Gly Glu Lys Ala Ser Arg Ala Gln Ile Leu Asp Lys  
 50 55 60  
 Ala Thr Glu Tyr Ile Gln Tyr Met Arg Arg Lys Asn  
 65 70  
 His Thr His Gln Gln Asp Ile Asp Asp Leu Lys Arg  
 75 80  
 Gln Asn Ala Leu Leu Glu Gln Gln Val Arg Ala Leu  
 85 90 95  
 Glu Lys Ala Arg Ser Ser Ala Gln Leu Gln Thr  
 100 105

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 347 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

ATATACATAT GGCTAGCATG ACTGGTGGAC AGCAAATGGG	40
TCGGGATCCT GACCTGGAAA AAGAGGCCGA AGAGCTGGAG	80
CAGGAAAACG CTGAACTCGA GGAAGAGCTG GAAGACAGCT	120
TTCACAGTTT GCGGGACTCA GTCCCATCAC TCCAAGGAGA	160
GAAGGCATCC CGGGCCCAA TCCTAGACAA AGCAACAGAG	200
TATATCCAGT ATATGCGAAG GAAAAACCAT ACGCACCAGC	240
AAGACATTGA TGACCTCAAG CGGCAGAATG CTCTTCTGGA	280
GCAACAAGTC CGTGCAC TGG AGAAGGCAAG ATCAAGTGCC	320
CAACTGCAGA CCTGAGGCAA GCTTATC	347

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 108 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
1 5 10  
Asp Pro Asp Leu Glu Lys Glu Ala Glu Glu Leu Glu  
15 20  
Gln Glu Asn Ala Glu Leu Glu Glu Glu Leu Glu Asp  
25 30 35  
Ser Phe His Ser Leu Arg Asp Ser Val Pro Ser Leu  
40 45  
Gln Gly Glu Lys Ala Ser Arg Ala Gln Ile Leu Asp  
50 55 60  
Lys Ala Thr Glu Tyr Ile Gln Tyr Met Arg Arg Lys  
65 70  
Asn His Thr His Gln Gln Asp Ile Asp Asp Leu Lys  
75 80  
Arg Gln Asn Ala Leu Leu Glu Gln Gln Val Arg Ala  
85 90 95  
Leu Glu Lys Ala Arg Ser Ser Ala Gln Leu Gln Thr  
100 105

(2) INFORMATION FOR SEQ ID NO:30:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 277 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

GGATCCAAC GACAAGAGGC GGACACACAA CGTCTTGAA	40
CGTCAGAGGA GGAACGAGCT GAAGCGCAGC TTTTGTGCC	80
TGCGTGACCA GATCCCTGAA TTGGAAAACA ACGAAAAGGC	120
CCCCAAGGTA GTGATCCTCA AAAAAGCCAC CGCCTACATC	160
CTGTCCATTC AAGCAGACGA GCACAAGCTC ACCTCTGAAA	200

AGGACTTATT GAGGAAACGA CGAGAACAGT TGAAACACAA

240

ACTCGAACAG CTTCGAAACT CTGGTGCATA AAAGCTT

277

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Asn Asp Lys Arg Arg Thr His Asn Val Leu Glu Arg  
1 5 10

Gln Arg Arg Asn Glu Leu Lys Arg Ser Phe Phe Ala  
15 20

Leu Arg Asp Gln Ile Pro Glu Leu Glu Asn Asn Glu  
25 30 35

Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr  
40 45

Ala Tyr Ile Leu Ser Ile Gln Ala Asp Glu His Lys  
50 55 60

Leu Thr Ser Glu Lys Asp Leu Leu Arg Lys Arg Arg  
65 70

Glu Gln Leu Lys His Lys Leu Glu Gln Leu Arg Asn  
75 80

Ser Gly Ala  
85

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 296 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

ATGGCTAGCA TGACTGGTGG ACAGCAAATG GGTGGGATC 40  
 CTGGCGGTGG CCTGGAACAA CGTGCTGAGG AACTGGCCCC 80  
 TGAAAACGAA GAGCTGGAAA AAGAGGCCGA AGAGCTGGAG 120  
 CAGGAAAACG CTGAACTCGA GCAGGAAGTG TTGGAGTTGG 160  
 AAAGTCGTAA TGACCGCCTG CGCAAGGAAG TGGAACAGCT 200  
 GGAGCGTGAA CTGGACACGC TCGGGGGTAT CTTCGCCAG 240  
 CTCCTGAGA GCTCCTTGGT CAAGGCCATG GGCAACTGCG 280  
 CGTGAGGCCA ATTCAA 296

(2) INFORMATION FOR SEQ ID NO:33:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 13 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp  
 1 5 10

Pro

(2) INFORMATION FOR SEQ ID NO:34:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 52 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Gly Gly Gly Thr Gln Gln Glu Val Leu Glu Leu Glu  
 1 5 10

Ser Arg Asn Asp Arg Leu Arg Lys Glu Val Glu Gln  
 15 20

Leu Glu Arg Glu Leu Asp Thr Leu Arg Gly Ile Phe

25

30

35

Arg Gln Leu Pro Glu Ser Ser Leu Val Lys Ala Met  
40 45

Gly Asn Cys Ala  
50

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 12 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Gly Gly Gly Leu Glu Gln Glu Asn Ala Glu Leu Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 19 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Gly Gly Gly Leu Glu Lys Glu Ala Glu Glu Leu Glu  
1 5 10

Gln Glu Asn Ala Glu Leu Glu  
15

(2) INFORMATION FOR SEQ ID NO:37:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 26 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Gly Gly Gly Leu Ala Arg Glu Asn Glu Glu Leu Glu  
1 5 10

Lys Glu Ala Glu Glu Leu Glu Gln Glu Asn Ala Glu  
15 20

Leu Glu  
25

(2) INFORMATION FOR SEQ ID NO:38:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 33 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Gly Gly Gly Leu Glu Gln Arg Ala Glu Glu Leu Ala  
1 5 10

Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
15 20

Leu Glu Gln Glu Asn Ala Glu Leu Glu  
25 30

(2) INFORMATION FOR SEQ ID NO:39:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 26 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Gly Gly Gly Leu Ala Arg Asn Asn Ile Ala Val Arg  
1 5 10

Lys Ser Arg Asp Lys Ala Lys Gln Arg Asn Val Glu  
15 20

Leu Glu

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25

(2) INFORMATION FOR SEQ ID NO:40:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 26 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Gly Gly Gly Leu Ala Arg Asn Asn Ile Ala Leu Arg  
1 5 10

Lys Ser Ala Asp Lys Leu Lys Gln Arg Asn Val Glu  
15 20

Leu Glu  
25

(2) INFORMATION FOR SEQ ID NO:41:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 26 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Gly Gly Gly Leu Ala Arg Glu Asn Ile Ala Val Glu  
1 5 10

Lys Glu Arg Asp Lys Ala Glu Gln Glu Asn Val Glu  
15 20

Leu Glu  
25

(2) INFORMATION FOR SEQ ID NO:42:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 26 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Gly Gly Gly Leu Ala Arg Asn Asn Glu Glu Val Arg  
1 5 10

Lys Ser Arg Glu Glu Ala Lys Gln Arg Asn Ala Glu  
15 20

Leu Glu  
25

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 141 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: unknown

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Ser Glu Tyr Gln Pro Ser Leu Phe Ala Leu Asn Pro  
1 5 10

Met Gly Phe Ser Pro Leu Asp Gly Ser Lys Ser Thr  
15 20

Asn Glu Asn Val Ser Ala Ser Thr Ser Thr Ala Lys  
25 30 35

Pro Met Val Gly Gln Leu Ile Phe Asp Lys Phe Ile  
40 45

Lys Thr Glu Glu Asp Pro Gly Lys Ala Lys Lys Ser  
50 55 60

Val Asp Lys Asn Ser Asn Glu Tyr Arg Val Arg Arg  
65 70

Glu Arg Asn Asn Ile Ala Val Arg Lys Ser Arg Asp  
75 80

Lys Ala Lys Gln Arg Asn Val Glu Thr Gln Gln Lys  
85 90 95

Val Leu Glu Leu Thr Ser Asp Asn Asp Arg Leu Arg  
100 105

Lys Arg Val Glu Gln Leu Ser Arg Glu Leu Asp Thr



110

115

120

Leu Arg Gly Ile Phe Arg Gln Leu Pro Glu Ser Ser  
                   125                  130

Leu Val Lys Ala Met Gly Asn Cys Ala  
           135                  140

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 83 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Pro Val Lys Asp Glu Arg Glu Leu Lys Arg Gln Lys  
   1                  5                  10

Arg Lys Gln Ser Asn Arg Glu Ser Ala Arg Arg Ser  
           15                  20

Arg Leu Arg Asn Glu Ala Glu Cys Glu Gln Thr Gln  
   25                  30                  35

Gln Lys Val Leu Glu Leu Thr Ser Asp Asn Asp Arg  
           40                  45

Leu Arg Lys Arg Val Glu Gln Leu Ser Arg Glu Leu  
   50                  55                  60

Asp Thr Leu Arg Gly Ile Phe Arg Gln Leu Pro Glu  
           65                  70

Ser Ser Leu Val Lys Ala Met Gly Asn Cys Ala  
       75                  80

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 102 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

20050720.012902

Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp  
 1 5 10  
 Pro Leu Glu Glu Lys Val Phe Val Pro Asp Glu Gln  
 15 20  
 Lys Asp Glu Lys Tyr Trp Thr Arg Arg Lys Lys Asn  
 25 30 35  
 Asn Val Ala Ala Lys Arg Ser Arg Asp Ala Arg Arg  
 40 45  
 Leu Lys Glu Asn Gln Thr Gln Gln Lys Val Leu Glu  
 50 55 60  
 Leu Thr Ser Asp Asn Asp Arg Leu Arg Lys Arg Val  
 65 70  
 Glu Gln Leu Ser Arg Glu Leu Asp Thr Leu Arg Gly  
 75 80  
 Ile Phe Arg Gln Leu Pro Glu Ser Ser Leu Val Lys  
 85 90 95  
 Ala Met Gly Asn Cys Ala  
 100

(2) INFORMATION FOR SEQ ID NO:46:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 28 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: unknown
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

GTCACTCAGA TTGCGCAATA TCGGTCAG

28

(2) INFORMATION FOR SEQ ID NO:47:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 10 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: unknown
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

## (2) INFORMATION FOR SEQ ID NO:48:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 13 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Met Asp Tyr Lys Asp Asp Asp Asp Lys Lys Lys Arg Lys  
1 5 10

## (2) INFORMATION FOR SEQ ID NO:49:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 9 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala  
1 5

## (2) INFORMATION FOR SEQ ID NO:50:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 8 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Asp Tyr Lys Asp Asp Asp Asp Lys  
1 5

## (2) INFORMATION FOR SEQ ID NO:51:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
1 5 10

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
1 5 10

Asp Pro Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala  
15 20

Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
25 30 35

Leu Glu Gln Glu Asn Ala Glu Leu Glu Ala Glu Thr  
40 45

Asp Gln Leu Glu Asp Glu Lys Ser Ala Leu Gln Thr  
50 55 60

Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu  
65 70

Glu Phe Ile Leu Ala Ala His Arg Pro Ala Cys Lys  
75 80

Ile Pro  
85

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: unknown

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Asp Pro Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala  
1 5 10  
Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
15 20  
Leu Glu Gln Glu Asn Ala Glu Leu Glu Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 34 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Asp Pro Asp Leu Glu Gln Arg Ala Glu Glu Leu Ala  
1 5 10  
Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
15 20  
Leu Glu Gln Glu Leu Ala Glu Leu Glu Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Arg Ile Lys Ala Glu Arg Lys Arg Met Arg Asn Arg  
1 5 10  
Ile Ala Ala Ser Lys Cys Arg Lys Arg Lys Leu Glu

Arg Ile Ala Arg Leu Glu Glu  
25 30

(2) INFORMATION FOR SEQ ID NO:56:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 31 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Ser Asn Glu Tyr Arg Val Arg Arg Glu Arg Asn Asn  
1 5 10

Ile Ala Val Arg Lys Ser Arg Asp Lys Ala Lys Gln  
15 20

Arg Asn Val Glu Thr Gln Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:57:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 34 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Gly Gly Gly Leu Glu Gln Arg Ala Glu Glu Leu Ala  
1 5 10

Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala Glu Glu  
15 20

Leu Glu Gln Glu Asn Ala Glu Leu Glu Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:58:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 31 amino acids  
 (B) TYPE: amino acid

(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Ser Asn Glu Tyr Arg Val Arg Arg Glu Arg Asn Asn  
1 5 10

Ile Ala Val Arg Lys Ser Arg Asp Lys Ala Lys Gln  
15 20

Arg Asn Val Glu Thr Gln Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Asp Glu Lys Tyr Trp Thr Arg Arg Lys Lys Asn Asn  
1 5 10

Val Ala Ala Lys Arg Ser Arg Asp Ala Arg Arg Leu  
15 20

Lys Glu Asn Gln Thr Gln Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Glu Leu Lys Arg Gln Lys Arg Lys Gln Ser Asn Arg  
1 5 10

Glu Ser Ala Arg Arg Ser Arg Leu Arg Lys Gln Ala  
15 20

Glu Cys Glu Gln Leu Gln Gln  
25 30

(2) INFORMATION FOR SEQ ID NO:61:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 5 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Asp Pro Gly Gly Gly  
1 5

(2) INFORMATION FOR SEQ ID NO:62:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 4 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Asp Pro Glu Glu  
1

(2) INFORMATION FOR SEQ ID NO:63:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 6 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: unknown  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Asp Pro Asp Glu Glu Glu  
1 5



(2) INFORMATION FOR SEQ ID NO:64:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 89 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: unknown  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg  
 1 5 10

Asp Pro Gly Gly Gly Leu Glu Gln Arg Ala Glu Glu  
 15 20

Leu Ala Arg Glu Asn Glu Glu Leu Glu Lys Glu Ala  
 25 30 35

Glu Glu Leu Glu Gln Glu Asn Ala Glu Leu Glu Gln  
 40 45

Glu Val Leu Glu Leu Glu Ser Arg Asn Asp Arg Leu  
 50 55 60

Arg Lys Glu Val Glu Gln Leu Glu Arg Glu Leu Asp  
 65 70

Thr Leu Arg Gly Ile Phe Arg Gln Leu Pro Glu Ser  
 75 80

Ser Leu Val Lys Ala  
 85